6.0 Soil Sampling and Analysis Guidelines

The quantity and locations of the samples specified in the following guidance are intended to provide a good approximation of the extent of soil contamination. Additional samples should be taken from areas where contamination is known or suspected, at potential sources or along preferential pathways (e.g., underground utilities). All analyses are required to be performed using approved analytical methods. Laboratories used must be NC DWQ certified to run the approved methods.

6.1 Field Screening

Portable organic vapor analyzers (Flame Ionization Detectors, Photoionization Detectors) and immunoassay field test kits are useful tools for on-site sample screening and selecting samples for lab analysis. However, because of their lack of specificity, accuracy, reproducibility, quality assurance/quality control, etc., field-screening data will not be acceptable for confirming the presence, nature and extent of soil contamination. Final determination of soil contamination must be made by the laboratory analytical methods as specified in Tables 5, 6 and 7 (pp. T-7, 8 and 9).

6.2 Sample Preparation

The type of sample containers used depends on the type of analysis performed. First determine the type(s) of contaminants expected and the proper analytical method(s) established in Tables 5, 6, and 7 (pp. T-7, 8 and 9) (Methods for Soil Analyses).

The NC DWQ Laboratory Certification Program maintains a list of certified commercial laboratories. The list includes laboratory contact information and the analytical methods they are certified to perform. The list is available from the NC DWQ Chemistry Laboratory at 4405 Reedy Creek Road, Raleigh, NC 27607 or by calling (919) 733-3908. The Laboratory Certification Program plans to add this list to their webpage in the near future. The webpage address is http://www.esb.enr.state.nc.us/lab/. Table 8 (p. T-10) lists the typical collection requirements for the specified methods. Be sure to consult your selected laboratory for their specific needs and requirements before you sample.

Sampling kits for collection and transport may be purchased from some commercial laboratories. They include all the items needed (sample containers, shipping cartons, etc.) for collection and shipment of samples. If you use these services, carefully follow the instructions provided and do not discard any preservative that may have been added to the containers. If you do not choose to use a customized kit provided by your laboratory, use only new containers that are appropriate for the contaminants you are sampling. Check with the laboratory that will be running the analysis about appropriate sample containers and the preservation requirements for each method. **If proper sampling and QA/QC protocols are not followed, the DWM may consider your results invalid.**

All sample containers containing methanol must be on ice when shipped from the laboratory, before sample collection, and when shipped back to the laboratory after sample collection. The sample containers should be kept in a refrigerator from the time they are received until they are taken to the field for sample collection. In other words, all sample containers containing methanol must be kept cold from the time they leave the laboratory until the time they return to the laboratory. The reason for keeping the methanol cold at all times is to reduce the chances of